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EBOLA WHAT YOU SHOULD KNOW

Ebola is caused by ebolavirus, which is part of the *Filoviridae* family of viruses. Four different ebolaviruses can cause disease in people. All four types have been found in Africa, but as outbreaks in recent years have shown, the virus can spread when infected individuals travel to other countries or areas.

WHAT IS EBOLA?

Ebola is a virus that can cause disease in people and in nonhuman primates. Historically, Ebola outbreaks have been relatively small, but infections are severe, typically causing death in about 1 of every 2 people infected according to the World Health Organization (WHO). For this reason, Ebola outbreaks tend to be newsworthy, especially if they appear to be spreading to other countries. Unfortunately, in recent years the size of outbreaks has increased as evidenced by the 2014-2016 West Africa outbreak that caused 11,000 deaths.

While six types of Ebola virus have been identified, only four have been shown to cause disease in people, referred to as Zaire, Sudan, Taï Forest and Bundibugyo. It remains unclear whether infection with one type protects people against infection with other types.

WHAT ARE THE SYMPTOMS OF EBOLA VIRUS INFECTION?

People infected with Ebola virus often suffer from fever, headache, muscle pain and weakness, abdominal cramping, diarrhea, vomiting, and unexplained bleeding or bruising. It can take up to 21 days after exposure to develop symptoms, but the average time frame is about eight to 10 days after exposure.

HOW IS THE VIRUS SPREAD?

Ebola is not spread as easily as some other infections. The two main ways to catch it are contact with infected wildlife (mostly in wild animals or bats in Africa) or by exposure to blood or body fluids, like saliva, sweat, vomit, breast milk, semen, feces, amniotic fluid or urine of infected people. People are most likely to spread the virus when they have symptoms of infection, but the virus can remain in the body after recovery, and cases have been reported in which someone who has recovered exposed other individuals. Likewise, objects contaminated with body fluids from someone who is sick with or has died from Ebola can also expose others to the virus and cause illness.

WHO IS AT RISK?

The virus spreads through close contact with an infected person, animal or contaminated object. Cases have also occurred following consumption of meat from infected animals. The virus is not spread through the air or by insect vectors, such as mosquitos or ticks.

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IS THERE A VACCINE?

Yes. An Ebola vaccine was approved for use in the U.S. in 2019; however, it is not routinely recommended since the risk for Ebola exposure in the U.S. is low. The vaccine is a live, weakened vaccine in which the protein coating of the Zaire strain of Ebola virus replaced the protein coating of another virus, called vesicular stomatitis virus (VSV). VSV, a virus that does not cause severe disease in people, was weakened so that as it replicates, it also produces the Ebola protein coat, causing the vaccine recipient's immune system to generate a response against it.

A second Ebola vaccine is available in Europe, but not in the U.S. That vaccine is a two-component product. The first dose is made using adenovirus-based technology, similar to what was used in the J&J/Janssen COVID-19 vaccine (no longer available in the U.S.). This component of the Ebola vaccine delivers DNA to produce the protein coat from the Zaire strain of Ebola virus. The second component of this vaccine is made using a recombinant virus that includes proteins from each of the four types of Ebola virus that cause disease in people. The vaccine virus does not replicate when administered to people, so it is processed like traditional inactivated vaccines, such as polio and influenza shots.

WHO SHOULD GET THE EBOLA VACCINE?

The vaccine used in the U.S. is recommended for people 18 years and older who are likely to be exposed to Ebola through their work, such as those responding to an outbreak, healthcare workers, and laboratory staff working with the virus.

Because the vaccine is a live, weakened virus, and viral RNA has been detected in blood and body fluids of recently vaccinated individuals, people who get this vaccine should not:

- Donate blood or expose high-risk individuals to their blood and body fluids for at least six weeks; this includes those who are immune compromised, pregnant or breastfeeding, or younger than 1 year of age
- Open-mouth kiss or share needles and personal items, like razors, cups and toothbrushes, for at least two weeks
- Expose livestock to their blood and body fluids for at least six weeks

If a rash develops, it should be kept covered until it heals. Used bandages should be discarded in a sealed plastic bag, and hands should be washed carefully after disposal to ensure containment of any virus.

WHO SHOULD NOT GET THE EBOLA VACCINE?

People younger than 18 years of age and those with severe allergies (anaphylactic) to rice protein should not get this vaccine.

This information is provided by the Vaccine Education Center at Children's Hospital of Philadelphia. The Center is an educational resource for parents, the public and healthcare professionals and is composed of scientists, physicians, mothers and fathers devoted to the study and prevention of infectious diseases. The Vaccine Education Center is funded by endowed chairs from Children's Hospital of Philadelphia. The Center does not receive support from pharmaceutical companies.